

Claims

We claim:

5 1. A single use processing substrate, comprising;
 a first cut-resistant layer having a first surface area and including tissue ply
 and a thermoplastic material ply; and
 a second layer having a second surface area and including a tissue ply and
10 a thermoplastic material ply, wherein the first layer is secured to the second layer
 such that a portion of the second surface area is laterally disposed outside of the
 first surface area.

 2. The single use processing substrate of claim 1, wherein the first
 layer tissue ply is disposed below the first layer thermoplastic material ply.

15 3. The single use processing substrate of claim 2, wherein the first
 layer thermoplastic material ply is extrusion coated onto the first layer tissue ply.

 4. The single use processing substrate of claim 1, wherein the second
20 layer tissue ply is disposed above the second layer thermoplastic material ply.

 5. The single use processing substrate of claim 4, wherein the second
 layer thermoplastic material ply is extrusion coated onto the second layer tissue
 ply.

25 6. The single use processing substrate of claim 1, wherein the
 thickness of the first layer tissue ply is between about 2 to about 6 mils.

 7. The single use processing substrate of claim 1, wherein the
30 thickness of the second layer tissue ply is between about 2 to about 6 mils.

8. The single use processing substrate of claim 1, wherein the thickness of the first layer thermoplastic ply is about 5 mils.

9. The single use processing substrate of claim 1, wherein the thickness of the second layer thermoplastic ply is about 3.5 mils.

10. The single use processing substrate of claim 1, wherein the first layer thermoplastic ply and the first layer tissue ply include a plurality of apertures therein.

11. The single use processing substrate of claim 10, wherein the apertures are created by perforating.

12. The single use processing substrate of claim 10, wherein the apertures are created by punching.

13. The single use processing substrate of claim 10, wherein the first layer thermoplastic ply and the first layer tissue ply contain an average of 5.52 apertures per square inch.

14. The single use processing substrate of claim 10, wherein the apertures are a substantially circular.

15. The single use processing substrate of claim 14, wherein the apertures have a diameter of about 0.08 inches.

16. The single use processing substrate of claim 10, wherein the apertures are regularly spaced.

17. The single use processing substrate of claim 16, wherein a spacing between apertures is created in the x-direction by 0.279 inches and in the y-direction by 0.165 inches.

5 18. The single use processing substrate of claim 17, wherein the spacing between apertures creates a zigzag pattern in the first layer thermoplastic ply and the first layer tissue ply.

10 19. The single use processing substrate of claim 1, wherein the first layer thermoplastic ply and the second layer thermoplastic ply includes a resin comprising metallocene polypropylene.

15 20. The single use processing substrate of claim 19, wherein the metallocene polypropylene comprises a copolymer of propylene and ethylene.

21. The single use processing substrate of claim 20, wherein the resin further includes a talc additive.

20 22. The single use processing substrate of claim 21, wherein the talc additive is present in an amount less than about 10 percent by weight of the resin.

23. The single use processing substrate of claim 22, wherein the resin further includes calcium, magnesium or zinc stearate.

25 24. The single use processing substrate of claim 23, wherein the resin further includes at least one antioxidant.

30 25. The single use processing substrate of claim 1, wherein the first layer is substantially centered in the second surface area in at least one direction.

26. The single use processing substrate of claim 1, wherein the first layer is substantially centered in the second surface area in both directions.

27. The single use processing substrate of claim 1, wherein the first surface area and the portion of the second surface area laterally disposed outside of the first surface area are embossed.

28. The single use processing substrate of claim 1, wherein the first layer has dimensions of about 9.75 inches by about 7.688 inches.

29. The single use processing substrate of claim 1, wherein the second layer has dimensions of about 11.75 inches by about 9.688 inches.

30. The single use processing substrate of claim 1, wherein the first layer is secured to the second layer by adhesive.

31. The single use processing substrate of claim 30, wherein the adhesive is ethyl vinyl acetate.

32. The single use processing substrate of claim 30, wherein the adhesive is in a pattern of parallel stripes.

33. A single use processing substrate, comprising;
a first cut-resistant layer having a first surface area and including a ply of
tissue disposed below a ply of thermoplastic material; and
an unfolded second layer having a second surface area and including a ply
of tissue disposed above a ply of thermoplastic material, wherein the first layer is
secured to and substantially centered on the second layer in at least one
dimension such that a portion of the second surface area is laterally disposed
outside of the first surface area.

34. The single use processing substrate of claim 33, wherein the first
layer tissue ply is disposed below the first layer thermoplastic material ply.

35. The single use processing substrate of claim 33, wherein the first
layer thermoplastic material ply is extrusion coated onto the first layer tissue ply.

36. The single use processing substrate of claim 33, wherein the second
layer tissue ply is disposed above the second layer thermoplastic material ply.

37. The single use processing substrate of claim 36, wherein the second
layer thermoplastic material ply is extrusion coated onto the second layer tissue
ply.

38. The single use processing substrate of claim 33, wherein the
thickness of the first layer tissue ply is between about 2 to about 6 mils.

39. The single use processing substrate of claim 33, wherein the
thickness of the second layer tissue ply is between about 2 to about 6 mils.

40. The single use processing substrate of claim 33, wherein the
thickness of the first layer thermoplastic ply is about 5 mils.

41. The single use processing substrate of claim 33, wherein the thickness of the second layer thermoplastic ply is about 3.5 mils.

42. The single use processing substrate of claim 33, wherein the first
5 layer thermoplastic ply and the first layer tissue ply include a plurality of apertures therein.

43. The single use processing substrate of claim 42, wherein the
10 apertures are created by perforating.

44. The single use processing substrate of claim 42, wherein the apertures are created by punching.

45. The single use processing substrate of claim 42, wherein the first
15 layer thermoplastic ply and the first layer tissue ply contain an average of 5.52 apertures per square inch.

46. The single use processing substrate of claim 42, wherein the
20 apertures are a substantially circular.

47. The single use processing substrate of claim 46, wherein the apertures have a diameter of about 0.08 inches.

48. The single use processing substrate of claim 41, wherein the
25 apertures are regularly spaced.

49. The single use processing substrate of claim 48, wherein a spacing
30 between apertures is created in the x-direction by 0.279 inches and in the y-direction by 0.165 inches.

50. The single use processing substrate of claim 49, wherein the spacing between apertures creates a zigzag pattern in the first layer thermoplastic ply and the first layer tissue ply.

5 51. The single use processing substrate of claim 33, wherein the first layer thermoplastic ply and the second layer thermoplastic ply includes a resin comprising metallocene polypropylene.

10 52. The single use processing substrate of claim 51, wherein the metallocene polypropylene comprises a copolymer of propylene and ethylene.

53. The single use processing substrate of claim 52, wherein the resin further includes a talc additive.

15 54. The single use processing substrate of claim 53, wherein the talc additive is present in an amount less than about 10 percent by weight of the resin.

20 55. The single use processing substrate of claim 54, wherein the resin further includes calcium, magnesium or zinc stearate.

56. The single use processing substrate of claim 55, wherein the resin further includes at least one antioxidant.

25 57. The single use processing substrate of claim 33, wherein the first layer is substantially centered in the second surface area in both dimensions.

58. The single use processing substrate of claim 33, wherein the first surface area and the portion of the second surface area laterally disposed outside of the first surface area are embossed.

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59. The single use processing substrate of claim 33, wherein the first layer has dimensions of about 9.75 inches by about 7.688 inches.

60. The single use processing substrate of claim 33, wherein the second
5 layer has dimensions of about 11.75 inches by about 9.688 inches.

61. The single use processing substrate of claim 33, wherein the first layer is secured to the second layer by adhesive.

10 62. The single use processing substrate of claim 61, wherein the adhesive is ethyl vinyl acetate.

63. The single use processing substrate of claim 61, wherein the
15 adhesive is in a pattern of parallel stripes.